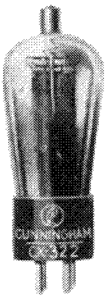
Cunningham RADIO TUBES



CX-322

SCREEN GRID RADIO-FREQUENCY AMPLIFIER

The '22 is a screen grid tube designed particularly for radio-frequency amplification in dry-battery-operated receivers employing 3.3 volt filament tubes.

CHARACTERISTICS

Filament Voltage (D. C.)		3.3	Volts
Filament Current		0.132	Ampere
Plate Voltage	135	135 *max.*	Volts
Grid Voltage	−1.5	−1.5	Volts
Screen Voltage	45*	67.5**	Volts
Plate Current	1.5	3.3	Milliamperes
Screen Current		Not over ⅓ of plate current	
Plate Resistance	350000	600000	Ohms
Amplification Factor	300	290	
Mutual Conductance	350	480	Micromhos
Effective Grid-Plate Capacitance		0.025 *maximum*	μμf.
Input Capacitance		3.2	μμf.
Output Capacitance		12	μμf.
Overall Length			4 25/32" to 5 1/32"
Maximum Diameter			1 13/16"
Bulb (See page 42, Fig. 11)			S-14
Cap			Small Metal
Base			Medium 4-Pin

* Maximum value of grid resistor is 5.0 megohms.
** Maximum value of grid resistor is 1.0 megohm.

INSTALLATION

The **base** pins of the '22 fit the standard four-contact socket. The socket should be installed to hold the tube in a vertical position. Cushioning of the socket may be desirable to avoid microphonic disturbances. For socket connections, see page 39, Figure 4.

For **filament** operation, refer to Installation for type '20.

APPLICATION

As a **radio-frequency amplifier** in multi-stage circuits, it is necessary to shield carefully each stage and to include within the stage shield all of the component parts of that stage. Unless this is done, the amplification possibilities of the '22 cannot be realized.

As an **audio-frequency amplifier,** this tube may be operated with either the screen-grid or space-charge-grid connection. In either case, the value of plate coupling resistor should be of from 100000 to 250000 ohms. With the screen-grid arrangement, a plate supply voltage of 135 to 180 volts applied through the coupling resistor is recommended. Under these conditions, a screen voltage of 22.5 volts and a negative grid voltage of 0.75 to 1.5 volts are suitable. For the space-charge-grid connection, the inner grid is operated at 22.5 volts, while the outer grid becomes the control grid and is biased negatively by from 0 to 1.5 volts, depending upon conditions of operation.